

TONGUE STABILIZER FOR LARYNGOSCOPE BLADE

BACKGROUND OF THE INVENTION

Field of the Invention

A disposable tongue stabilizer is adhesively attached to a laryngoscope blade to
5 position the tongue during intubation.

Description of Related Art

In many emergency situations in order to save lives or give anesthetics for surgery in
operating rooms, physicians have to use intubation procedures to establish an artificial airway.
10 During these intubation procedures laryngoscopes are used by physicians as an instrument to
keep the tongue out of the way in order to visualize the epiglottis so that an endotracheal tube
can be inserted into the trachea.

The problem is that all the laryngoscope blades on the market now are narrow and can
hold only approximately half of the tongue, so that it is very hard to make the tongue stay on
15 the laryngoscope blade with any degree of stability. The epiglottis is very difficult to visualize
and the endotracheal tube is very hard to insert into the trachea as the tongue gets in the way.

If the patent has a cardiac or respiratory arrest, the critical period is four minutes, and quite often the tube cannot be placed into the trachea within that critical time period. Consequently, the patient will have needless suffering, from irreversible brain damage, or death can occur.

5 It is old in the art to control the tongue while working in the mouth. G. Hull (U.S. Patent No. 2,723,662, issued 15 Nov 1955), and A. Pagoto (U.S. Patent No. 2,765,785, issued 9 oct 1956), and M. Inoue (U.S. Patent No. 4,589,848, issued 20 May 1986) are examples of tongue depressors. D. Van Dam (U.S. Patent No. 5,065,738, issued 19 Nov 1991) and J. Nash (U.S. Patent No. 5,438,976, issued 8 Aug 1995) and S. Dahibeck
10 (U.S. Patent No. 5,536,245, issued 16 Jul 1996) are examples of using adhesive to secure protective padding or a sensor to laryngoscope blades. W. Sun (U.S. Patent No. 4,834,077, issued 20 May 1989 and U.S. Patent No. 4,979,499, issued 25 Dec 1990) are examples of laryngoscope blade sheaths used to position the tongue during intubation.

SUMMARY OF THE INVENTION

15 In view of the many different types of blades used, it is difficult to quickly provide an appropriate device on a blade to control the tongue as the intubation process is performed. Rather than providing individual tongue control for each type blade, a universally useable

spoon-shaped tongue control is provided. A tongue holder or stabilizer is provided with a pressure-sensitive adhesive support for adhering the tongue holder on any shape blade. The appropriate size tongue control is selected and adhesively attached to the blade at the appropriate location for the individual being treated.

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BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a top view of the tongue stabilizer.

Fig. 2 is a bottom view of the tongue stabilizer of Fig. 1.

Fig. 3 is an end sectional view of the tongue stabilizer along the lines 3-3 of Fig. 1.

Fig. 4 is a side view of the tongue stabilizer adhered to a laryngoscope blade.

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Fig. 5 is a perspective view of the tongue stabilizer adhered to a laryngoscope blade.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The tongue stabilizer is shown in Figs. 1-5. Fig. 1 is a top view of the tongue stabilizer 1 showing a front end 2, front side curve 3, upturned front end 4, side 5, concave central area 6, rear side curve 7 and rear or back end 8 of a tongue-engaging plate 13.

Fig. 2 is a bottom view of the tongue stabilizer **1** additionally showing the adhesive protective covering or release material **9**.

Fig. 3 is a cross-sectional view taken along the section lines 3-3 of Fig. 1. The adhesive-securing configuration can be seen wherein a foam layer **10** is secured to the tongue stabilizer on one inner surface with an adhesive layer **12** adhered to its second outer surface. To protect the adhesive prior to use, a protective film **9** is held over the adhesive. The upturned front end **2** can be seen as well as the concave or spoon-shape central area **6** with upward extending side edges **5**.

Fig. 4 is a side view of the tongue stabilizer adhesively secured to a laryngoscope blade **11** showing the front end **2**, rear end **8** and side **5** with the concave or spoon shape visible as well as the foam support **10** and adhesive **12** bonding it to the blade **11**.

Fig. 5 is a perspective view of the tongue stabilizer of Fig. 4, again showing the concave or spoon-shape central area **6**.

The tongue stabilizer has a tongue-engaging plate **13** that is in the general shape of an elongated plate with rounded front or distal end and corners rounded to reduce sharp areas at the back or proximal end. The preferred shape of the support is that of a spoon shape or with a concave upper surface to cradle the tongue. The plate preferably has a thickness of from

0.015 to 0.125 inches and a width that extends beyond the width of the supporting laryngoscope blade it is secured to. A width of from 7/8 to 1 1/2 inches and a length of 1 to 2 1/2 inches is satisfactory for most applications. While a flat plate can function adequately to confine the tongue and prevent it from slipping and obstructing and/or obscuring the throat passage, a spoon shape is preferred as it tends to cradle the tongue and hold it within the concavity of the tongue-engaging plate. The preferred depth of the concavity below the front and sides of the plate is 1/8 to 1/2 inch. The plate can be a stiff paper or metal but an inert non-toxic plastic is preferred.

A foam **10** is secured to the plate by an adhesive or other bonding means that has a more permanent holding power than the blade-securing, pressure-sensitive adhesive **12**. The foam padding **10** provides for holding the convex bottom surface of the plate to a different curvature blade **11** along its entire extent by compressing in the areas the plate and blade are closest together. By providing holding power along the entire length of the foam **10** and adhesive **12** a firm bond is established to prevent accidental separation of the tongue stabilizer and blade. The preferred thickness of the foam is from 1/32 to 1/4 inch. The foam can be any open or closed pore foam that is inert or non-toxic to body fluids or other materials being used. The foam strip is preferably from 1/4 to 1/2 inch wide and from 3/4 to 2 inches long.

The adhesive **12** can be any pressure-sensitive adhesive, having a holding power sufficient to secure the plate under the forces encountered during the intubation process, that

is inert and non-toxic while being capable of forcefully releasing the blade 11 from the stabilizer 1 after the procedure is completed. The protective cover 9 can be any of the easily removed plastic or release papers in common use.

5 When intubation is to be performed, the technician can rapidly review the size blade and plate adequate to perform the procedure, select the blade and plate, remove the protective cover from the adhesive, secure the tongue stabilizer to the blade and proceed with the procedure using the plate to confine the tongue while intubating.

10 It is believed that the construction, operation and advantages of this invention will be apparent to those skilled in the art. It is to be understood that the present disclosure is illustrative only and that changes, variations, substitutions, modifications and equivalents will be readily apparent to one skilled in the art and that such may be made without departing from the spirit of the invention as defined by the following claims.